PEER REVIEW HISTORY

This paper was submitted to a another journal from BMJ but declined for publication following peer review. The authors addressed the reviewers' comments and submitted the revised paper to BMJ Open. The paper was subsequently accepted for publication at BMJ Open.

(This paper received three reviews from its previous journal but only two reviewers agreed to published their review.)

ARTICLE DETAILS

TITLE (PROVISIONAL)	The Impact of First and Second Eye Cataract Surgery on Physical Activity: A Prospective Study
AUTHORS	Meuleners, Lynn B; Feng, Ying Ru; Fraser, Michelle; Brameld, Kate; Chow, Kyle

VERSION 1 – REVIEW

REVIEWER	Merce Comas Hospital del Mar Medical Research Institute (IMIM), Spain
REVIEW RETURNED	11-Jul-2018

GENERAL COMMENTS	The study analyses the effect of cataract surgery in physical activity. This is an interesting issue because of the relationship between physical activity and health and quality of life, especially in the elderly. However, there are some limitations that need to be discussed. I'm quite concerned about the time between surgeries and between surgeries and assessments. The time between first and second eye ranged from 9 days to 417 days. Did the participant with 9 days between surgeries had the time to recover from surgery and engage in previous physical activities? Maybe a minimal time from first eye surgery and physical activity assessment should be considered. Please include a descriptive of the time from first eye surgery to physical assessment before second eye surgery. Was it opportunistic? Why it was not programmed at a similar point in time for all participants? For example, 1 month, 2 months… The same for the assessment after second eye surgery. The authors state that it was "at least one month after surgery", but why it was so distant from surgery? Variations from 135 to 420 days are quite big. Have the authors considered including the time as an adjusting factor in the GEE model? If not, the variation in the time after surgery when the assessment is performed should be included as a limitation. In table 3, even if the authors did not consider as statistically significant the differences in the mean time spent walking, gardening and vigorous physical activity, the absolute differences are substantial. Have the authors adjusted the GEE models for these other variables to check for potential confounders? Please discuss, as the effect of surgeries is different than for moderate physical activity and comparisons may not be statistically significant due to the small sample size. The fact that time spent in those other physical activities decreased after first eye surgery

	supports the need to operate the second eye as soon as possible in bilateral cataract patients. In methods, first paragraph, could you please give more details about the CEDAR study? Overall sample size was 300? Why only 55 participants completed all three assessments? Are they consecutively recruited as stated in line 43? Page 7, line 11: wording of exercise “categories” as “mutually exclusive” is misleading, it looks as if it was a unique variable. I suggest “types” of physical activity instead of “categories” and removing the sentence “These categories were mutually exclusive”. In results, page 9, line 24, I would not say “Most” for percentages around 60% or less. Please describe the percentages without qualifiers. Table 4: prescription medication is included in the list of nonsignificant factors under the table.

VERSION 1 – AUTHOR RESPONSE

We would like to thank the reviewer for their helpful suggestions and comments.
We have addressed each point below.
Q1: I’m quite concerned about the time between surgeries and between surgeries and assessments. The time between first and second eye ranged from 9 days to 417 days. Did the participant with 9 days between surgeries had the time to recover from surgery and engage in previous physical activities? Maybe a minimal time from first eye surgery and physical activity assessment should be considered.
R1: This range of 9 to 417 days represents the realistic range of time bilateral cataract patient may wait between first and second eye surgery in WA, so we feel it is important to include this range. While recovery from cataract surgery is usually rapid (within a few days), it is possible that those who had first and second eye surgery in short succession had not fully recovered by their second assessment. This may have contributed to the smaller increase in moderate physical activity following first eye surgery, compared to the increase after second eye surgery. This has been added to the discussion. (p.12) “However, while recovery from cataract surgery is usually rapid (within a few days), it is possible that those who had first and second eye surgery in short succession had not fully recovered by their second assessment. In addition, the average time to assessment after second eye surgery was longer than after first eye surgery. These factors may have contributed to the smaller increase in moderate physical activity following first eye surgery, compared to the larger increase after second eye surgery” It is also important to note that while the minimum time between surgeries was 9 days, the average was around three months with only 5 participants having less than 3 weeks between first eye surgery and the assessment.

Q2: Please include a descriptive of the time from first eye surgery to physical assessment before second eye surgery. Was it opportunistic? Why it was not programmed at a similar point in time for all participants? For example, 1 month, 2 months… The same for the assessment after second eye surgery.
R2: The paragraph in the results section (p. 9) has been corrected and information added. “The wait time between first and second eye cataract surgery ranged between 9 to 417 days with a mean of 99.6 days (SD=73.7). The second assessment (after first eye surgery) occurred on average 59.7 days after surgery (SD=41.3) with a range of 9 to 254 days. The third assessment (after second eye surgery) occurred between 28 to 238 days, with an average of 111.4 days after second eye surgery (SD=40.2).” Yes it was opportunistic as the participant had to come to the University for a driving simulator assessment (not reported in this paper) which is why there is large variation between each individual and when they were available for their assessment at the University.

Q3: The authors state that it was “at least one month after surgery”, but why it was so distant from surgery? Variations from 135 to 420 days are quite big. Have the authors considered including the time as an adjusting factor in the GEE model? If not, the variation in the time after surgery when the assessment is performed should be included as a limitation.
R3: The follow-up time after second eye was quite long as we were assessing a comprehensive battery of outcomes including quality of life and falls so needed enough time for changes in QOL or a fall to occur. The assessments were also opportunistic as stated above. The GEE model includes exposure (follow-up time) in the model so this has already been accounted for. The following sentence has been added to the Statistical Analysis section (p.8) “The GEE model also took account of the time between the three assessments.”

Q4: In table 3, even if the authors did not consider as statistically significant the differences in the mean time spent walking, gardening and vigorous physical activity, the absolute differences are substantial. Have the authors adjusted the GEE models for these other variables to check for potential confounders? Please discuss, as the effect of surgeries is different than for moderate physical activity and comparisons may not be statistically significant due to the small sample size.
R4: Yes the GEE modelling adjusting for potential confounders was also performed for walking, gardening and vigorous physical activity but they still showed up as not statistically significant which is why it has not been reported. The following sentence has been modified in the Discussion which explains why these other forms of physical activity may not have been significant (p.12) “…this change was not significant possibly due to the small sample size.”

Q5: The fact that time spent in those other physical activities decreased after first eye surgery supports the need to operate the second eye as soon as possible in bilateral cataract patients.
R5: This has been added to the discussion section (p.12) “Interestingly, other physical activity including walking, gardening and vigorous physical activity appeared to decrease following first eye surgery, although this change was not significant possibly due to the small sample size.” and “The impact of cataract surgery on these other activities should be investigated further however, since the possible decrease in these activities after first eye surgery would support the need to operate on the second eye as soon as possible for bilateral cataract patients.”

Q6: In methods, first paragraph, could you please give more details about the CEDAR study? Overall sample size was 300? Why only 55 participants completed all three assessments? Are they consecutively recruited as stated in line 43?
R6: Further information on the variation in sample size has been added to the methods section (p.5). “For the CEDAR Study, a total of 111 participants were recruited consecutively from three public hospitals in WA and completed the first assessment. Fifty-five of these participants also completed the second and third assessments. This paper includes only the 55 participants who completed all three assessments.”

Q7: Page 7, line 11: wording of exercise “categories” as “mutually exclusive” is misleading, it looks as if it was a unique variable. I suggest “types” of physical activity instead of “categories” and removing the sentence “These categories were mutually exclusive”.
R7: The change in wording from categorise to type of physical activity has been made throughout the paper. The sentence “These categories were mutually exclusive” has been removed.

Q8: In results, page 9, line 24, I would not say “Most” for percentages around 60% or less. Please describe the percentages without qualifiers.
R8: The word “Most” has been removed and this section has been described using percentages.

Q9: Table 4: prescription medication is included in the list of nonsignificant factors under the table.
R9: This has been removed. Thank you.